

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 1. (Currently Amended) A bistable structure comprising:
2 a deflection element including mechanically constrained end points and a
3 compliant span between the end points that is substantially free to deflect
4 between two stable positions when a force is applied ~~at a point along to~~ the span;
5 wherein the deflection element span is provided, as-fabricated, curved in
6 one of the two stable positions ~~and in a mechanically unstressed condition along~~
7 ~~span length;~~

8 wherein the as-fabricated curve of the deflection element span includes a
9 curve maxima at a point along span length that is at least about $\frac{1}{4}$ of the span
10 length from the end points of the span;

11 wherein the deflection element span is characterized by a thickness that is
12 modulated along the span; and

13 wherein the deflection element span is ~~constrained~~ configured to
14 substantially prohibit development of a second bending mode that is
15 characteristic for the span as the element deflects between the two stable
16 positions.

1 2. (Original) The bistable structure of claim 1 wherein the deflection
2 element comprises a beam.

1 3. (Currently Amended) The bistable structure of claim 1 wherein the
2 deflection element comprises two beams connected together at a point along the
3 spans of the beams by an interconnecting clamp that ~~prohibits~~limits
4 development of a second bending mode that is otherwise characteristic for the
5 spans as the element deflects between the two stable positions.

1 4. (Currently Amended) The bistable structure of claim 1 wherein the
2 deflection element comprises a plate constrained at its outside diameter.

1 5. (Currently Amended) The bistable structure of claim 1 wherein the
2 deflection element comprises a diaphragm constrained at its outside diameter.

1 6. (Currently Amended) The bistable structure of claim 1 wherein the
2 constrained end points of the span are ~~clamped~~ rigidly constrained to prevent
3 angular deflection.

1 7. (Currently Amended) The bistable structure of claim 1 wherein the
2 constrained end points of the span are hinged to allow angular deflection.

1 8. (Original) The bistable structure of claim 1 wherein the constrained
2 end points of the span comprises torsional spring elements.

1 9. (Original) The bistable structure of claim 1 wherein the span comprises
2 aluminum.

1 10. (Original) The bistable structure of claim 1 wherein the span
2 comprises silicon.

1 11. (Original) The bistable structure of claim 9 wherein the curve of the
2 deflection element span corresponds to a lithographic mask defining the curve as-
3 fabricated.

1 12. (Original) The bistable structure of claim 11 wherein the lithographic
2 mask defines an etch mask pattern for etching the curve of the deflection element
3 span.

1 13. (Original) The bistable structure of claim 1 wherein the curve of the
2 deflection element span comprises a trajectory along the span length
3 corresponding to a first bending mode characteristic for the span.

1 14. (Original) The bistable structure of claim 1 wherein the curve of the
2 deflection element span comprises a trajectory along the span length defined as
3 $\frac{\bar{d}(1 - \cos(2\pi x/l))}{2}$, where \bar{d} is the curve maxima value and x is the distance along
4 the span length between 0 and l .

1 15. (Original) The bistable structure of claim 1 wherein the maxima of the
2 curve of the deflection element span is located at substantially the center of the
3 span.

1 16. (Original) The bistable structure of claim 1 further comprising a
2 plurality of electrically conductive relay contacts disposed at positions that are
3 separated from the deflection element by a separation distance selected such that
4 an electrical connection is provided between the relay contacts when the
5 deflection element is in one of the two stable positions.

1 17. (Original) The bistable structure of claim 16 wherein the electrical
2 connection provided between the relay contacts comprises mechanical contact of
3 each relay contact with an electrically conducting cross bar that is compliantly
4 connected to the deflection element.

1 18. (Original) The bistable structure of claim 1 further comprising a force
2 generation actuator including a mechanical force applicator that is disposed
3 relative to the deflection element to apply a force to the deflection element span
4 and that is connected to receive an electrical stimulus for applying the force.

1 19. (Original) The bistable structure of claim 18 wherein the electrical
2 stimulus comprises an electrostatic actuation voltage.

1 20. (Original) The bistable structure of claim 18 wherein the electrical
2 stimulus comprises a thermal actuation voltage.

1 21. (New) The bistable structure of claim 1 wherein the modulated
2 element thickness comprises a gradual variation in thickness lengthwise along
3 the deflection element span.

1 22. (New) The bistable structure of claim 21 wherein the gradual
2 variation in thickness comprises a sinusoidal variation.

1 23. (New) The bistable structure of claim 1 wherein the deflection
2 element thickness modulation produces a ratio in force required to move from a
3 first stable position to a second stable position and from the second stable
4 position back to the first stable position that is less than 1.5.

1 24. (New) The bistable structure of claim 4 wherein the deflection
2 element comprises two plates connected together at a point between the plates by
3 an interconnecting feature that limits development of a second bending mode
4 that is otherwise characteristic for the plates as the element deflects between the
5 two stable positions.

1 25. (New) The bistable structure of claim 5 wherein the deflection
2 element comprises two diaphragms connected together at a point between the
3 diaphragms by an interconnecting feature that limits development of a second
4 bending mode that is otherwise characteristic for the diaphragms as the element
5 deflects between the two stable positions.

1 26. (New) The bistable structure of claim 1 wherein the span comprises a
2 material characterized by a constant Young's modulus, obeying Hooke's Law.

1 27. (New) The bistable structure of claim 1 wherein the span comprises a
2 microelectronic material.

1 28. (New) The bistable structure of claim 1 wherein the span is configured
2 to support passage of an electrical current along the span in a direction
3 corresponding to an applied magnetic field for generating a magnetic deflection
4 force on the deflection element.